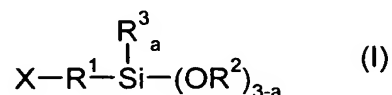


Claims

1. A two-component adhesion promoter composition for surface pretreatment, comprising two components,
5 the first component, **K1**, comprising at least one hydrolyzable adhesion promoter substance **A** which is selected from the group comprising organosilicon compounds, organotitanium compounds, organozirconium compounds, and mixtures thereof,
10 and
the second component, **K2**, comprising at least one compound **B** which reacts with the adhesion promoter substance **A** or triggers or catalyzes condensation of the adhesion promoter substance **A**, and
15 the first and the second components in the unopened state being present in two compartments (1, 2) separated from one another by at least one dividing wall (3).
- 20 2. The two-component adhesion promoter composition of claim 1, characterized in that the hydrolyzable adhesion promoter substance **A** is an organosilicon compound which carries at least one, in particular at least two, alkoxy group or groups which is or
25 are attached via an oxygen-silicon bond directly to a silicon atom.
3. The two-component adhesion promoter composition of claim 2, characterized in that the organosilicon
30 compound carries at least one substituent which is attached via a silicon-carbon bond to the silicon atom and which optionally has a functional group selected from the group comprising oxirane, hydroxyl, (meth)acryloyloxy, amino, mercapto, and
35 vinyl group.

4. The two-component adhesion promoter composition of claim 3, characterized in that the hydrolyzable adhesion promoter substance A has the formula (I)



5

where

R¹ is a linear or branched, optionally cyclic, alkylene group having 1 to 20 C atoms, with or without aromatic components, and optionally with one or more heteroatoms, especially nitrogen atoms;

R² is an alkyl group having 1 to 5 C atoms, especially methyl or ethyl;

R³ is an alkyl group having 1 to 8 C atoms, especially methyl;

X is an H or a functional group which is selected from the group comprising oxirane, OH, (meth)acryloyloxy, amine, SH, and vinyl;

and

a is 0, 1 or 2, particularly 0.

5. The two-component adhesion promoter composition of claim 3, characterized in that the substituent R¹ is a methylene, propylene, methylpropylene, butylene, or dimethylbutylene group, in particular a propylene group.

6. The two-component adhesion promoter composition of claim 4, characterized in that the hydrolyzable adhesion promoter substance A is one selected from the group comprising methyltriacetoxysilane, ethyltriacetoxysilane, 3-methacryloyloxypropyltrialkoxysilanes, 3-aminopropyltrialkoxysilanes, bis[3-(trialkoxysilyl)propyl]amines, tris[3-(trialkoxysilyl)propyl]amines, 3-aminopropyltrialkoxy-

silanes, N-(2-aminoethyl)-3-aminopropyltrialkoxysilanes, N-(2-aminoethyl)-N-(2-aminoethyl)-3-aminopropyltrialkoxysilanes, 3-glycidyloxypropyltrialkoxysilanes, 3-mercaptopropyltrialkoxysilanes, vinyltrialkoxysilanes, methyltrialkoxysilanes, octyltrialkoxysilanes, dodecyltrialkoxysilanes, and hexadecyltrialkoxysilanes, particular suitability being possessed by the methoxysilanes and ethoxysilanes of the above mentioned compounds.

7. The two-component adhesion promoter composition of claim 1, characterized in that the hydrolyzable adhesion promoter substance **A** is an organotitanium compound which carries at least one functional group which is selected from the group comprising alkoxy group, sulfonate group, phosphate group, carboxylate group or mixtures thereof and which is attached via an oxygen-titanium bond directly to a titanium atom.
8. The two-component adhesion promoter composition of claim 7, characterized in that the alkoxy group is a methoxy, butyl or isopropyl group, in particular an isopropyl group.
9. The two-component adhesion promoter composition of any one of the preceding claims, characterized in that the first component **K1** comprises at least two hydrolyzable adhesion promoter substances **A**.
10. The two-component adhesion promoter composition of claim 9, characterized in that the first component **K1** comprises at least one hydrolyzable adhesion promoter substance **A** which is an organosilicon compound and at least one hydrolyzable adhesion

promoter substance **A** which is an organotitanium compound.

- 5 11. The two-component adhesion promoter composition of any one of the preceding claims, characterized in that the compound **B** in the second component **K2** is an organotin compound or an acid.
- 10 12. The two-component adhesion promoter composition of claim 11, characterized in that the compound **B** is an organotin compound, especially dialkyltin diacetylacetonate or a dialkyltin dicarboxylate, especially dibutyltin dilaurate or dibutyltin diacetate, preferably dibutyltin dilaurate.
- 15 13. The two-component adhesion promoter composition of claim 11, characterized in that the compound **B** is an acid, in particular an inorganic acid, preferably containing phosphorus, containing
- 20 sulfur.
- 25 14. The two-component adhesion promoter composition of claim 11, characterized in that the compound **B** is an acid, in particular an organic acid, preferably formic, acetic or amino acid, most preferably acetic acid.
- 30 15. The two-component adhesion promoter composition of any one of the preceding claims, characterized in that the second component comprises water.
- 35 16. The two-component adhesion promoter composition of any one of the preceding claims, characterized in that the first **K1** and/or the second **K2** component further comprises a volatile solvent, especially ethanol, methanol, isopropanol or hexane.

17. The two-component adhesion promoter composition of any one of the preceding claims, characterized in that the first **K1** and/or the second **K2** component is liquid.
- 5
18. The use of a pack (5) which has two compartments (1, 2) separated from one another by at least one dividing wall (3) for the storage of two components (**K1**, **K2**), characterized in that
- 10 the first component **K1** is a first component **K1** as described in any one of claims 1 to 10 and 16 to 17; and
- the second component **K2** is a second component **K2** as described in any one of claims 1 and 11 to 15
- 15 and 16 to 17.
19. The use of a pack of claim 18, characterized in that the at least one dividing wall (3) is a seal (3') which in the unopened state of the pack (5)
- 20 separates the two compartments (1, 2) from one another.
20. The use of a pack of claim 19, characterized in that the seal (3') in the closed state is squeezed
- 25 by at least two wall sections (8, 8'), at least one wall section (8, 8') being configured as to be movable by external influence, in particular by a thread (9), so that by virtue of the external influence the seal (3') becomes loose and the two
- 30 compartments (1, 2) are connected to one another.
21. The use of a pack of claim 18, characterized in that the dividing wall (3) in the region of the connection with the inner wall of the compartments
- 35 1, 2 has a predetermined breakage point and can be extracted from the pack 5.

22. The use of a pack of claim 18, characterized in that the dividing wall (3) is manufactured from a material which ruptures or tears as a result of the application of pressure.
- 5
23. The use of a pack of claim 21 or 22, characterized in that at least one compartment (1, 2) has a greater volume than that of the component present therein, with particular preference such that the
- 10
- volume not occupied by said component corresponds at least to the volume of the other component.
24. The use of a pack of claim 22 or 23, characterized in that the pressure is applied by a bursting aid, in particular a cutting means (7), to the dividing
- 15
- wall (3).
25. The use of a pack of any one of claims 18 to 24, characterized in that the volume ratio $K1/K2$ of the first component $K1$ to the second component $K2$
- 20
- is between 1000/1 and 1/1000, in particular between 200/1 to 10/1 or between 1/200 to 1/10, preferably between 200/1 to 20/1 or between 1/200 to 1/20.
- 25
26. The use of a pack of any one of claims 18 to 25, characterized in that at least the walls of that compartment in which the first component $K1$ is stored are composed of one or more materials which
- 30
- are impervious to diffusion of water in liquid or gaseous state, especially aluminum or glass or composites.
27. A package (6) consisting of
- 35
- a pack (5) which has two compartments (1, 2) separated from one another by at least one dividing wall (3);

and

a two-component adhesion promoter composition of any one of claims 1 to 17.

- 5 28. The package (6) of claim 27, characterized in that the dividing wall (3) is manufactured from a material which ruptures or tears as a result of the application of pressure.
- 10 29. The package (6) of claim 27 or 28, characterized in that at least the walls of the compartment in which the first component is stored are composed of one or more materials which are impervious to diffusion of water in liquid or gaseous state or
15 at least so impermeable that the desired storage stability is not adversely affected, especially aluminum or glass or composite.
- 20 30. The package (6) of any one of claims 27 to 29, characterized in that the volume ratio $K1/K2$ of the first component $K1$ to the second component $K2$ is between 1000/1 and 1/1000, in particular between 200/1 to 10/1 or between 1/200 to 1/10, preferably between 200/1 to 20/1 or between 1/200
25 to 1/20.
- 30 31. A method of applying a two-component adhesion promoter composition for surface pretreatment, of any one of claims 1 to 17, characterized in that by application of pressure to the dividing wall (3) said wall ruptures and subsequently the two components ($K1$, $K2$) come into contact with one another, and the composition is applied through an aperture (10), which if appropriate is accessible
35 by removal of a cover (11), to a substrate surface.

32. The method of claim 31, characterized in that between the contacting of the two components (K1, K2) and the application a step of mixing is carried out, brought about in particular by shaking of the package (6).
- 5